

Sustainable Access to Horton Plains National Park (HPNP): A Shuttle Solution for a Fragile Landscape

A white paper proposing a socially conscious, viable business to reduce vehicular environmental impact, enhance visitor experience, and invest in the communities that surround HPNP

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Abstract

This white paper proposes a daily, year-round shuttle service connecting Nuwara Eliya to Horton Plains National Park (HPNP). A shuttle service return trip, priced at \$35, would be targeted toward eco-conscious, mid- to high-end market travellers. Each departure would include an onboard naturalist guide who provides ecological interpretation during the journey, a designated photography stop en route, and select ancillary services.

The service is designed to benefit:

- 1. A fragile ecosystem by reducing vehicle numbers inside the HPNP.*
- 2. Visitors by creating a more comfortable, enriching, and responsible way to experience Horton Plains.*
- 3. The communities surrounding the HPNP area such as Pattipola, Ambewela, and Nuwara Eliya via direct employment and service provision opportunities, as well as a designated Community Fund.*

While environmental and social considerations underpin this model, there is also a clear financial case for a structurally resilient, profitable business:

- 1. The service breaks even at just ~10% seat occupancy, requiring only ~300 passengers a month, providing a substantial margin of safety against demand fluctuations.*
- 2. Under base-case assumptions, the shuttle service is estimated to generate an EBITDA of ~USD 264,000 in its first year at a margin of ~70%, with EBITDA rising to over USD 550,000 by Year 2 at a ~79% EBITDA margin.**
- 3. Cumulative cash flow turns positive within 15 months of launch, and by end of Year 3, the business is projected to have generated over USD 370,000 in cumulative free cash after recovering the full startup investment. Under all three modelled scenarios (conservative, base, and optimistic) the business is profitable from Year 1 and achieves full payback within 18 months.*

**Even in the base case, a fairly conservative occupancy ramp-up of ~27% has been considered.*

More than a business plan, this paper presents a model for how tourism infrastructure can be redesigned to protect the places it depends on.

HPNP Shuttle Service

PROBLEM

~400 kg of CO₂ emissions in just 30 minutes during peak season congestion

Uncomfortable ride & dead travel time with no ecological or cultural context-setting

Economic value bypasses local communities in the HPNP area

SOLUTION

Replacing just 30% of vehicles with shuttle could reduce emissions by ~25%

Comfortable seats, naturalist guide to interpret journey, and ancillary services

Employment & ancillary service provision opportunities; Community Fund

1. Executive Summary

Horton Plains National Park (HPNP), situated at ~2,100 metres above sea level in Sri Lanka's central highlands, is one of only two cloud forests on the island and a UNESCO World Heritage Site. Spreading across 3,000+ hectares, it contains diverse biospheres such as montane evergreen forests, grasslands, marshes, and aquatic ecosystems.



Grasslands of HPNP © Dilanke Panagoda

It is home to extraordinary levels of endemism (species found nowhere else on earth) and protects the headwaters of three of Sri Lanka's major rivers: the Mahaweli, Kelani, and Walawe. It is also the highest tableland in Sri Lanka, containing the trailheads for the second and third highest mountains in the country, Kirigalpoththa (2,389m) and Thotupola Kanda (2,357 m).

The biggest draws for visitors are Baker's Falls and World's End Viewpoint (an escarpment with a sheer drop and spectacular views to the south of the island on a clear day). The park receives ~180,000 visitors annually, with ~15% being foreigners. It is the only national park in Sri Lanka where visitors are allowed to leave their vehicles and walk across designated paths.

Due to its isolated location, direct public transportation to HPNP is not an option, but the park entrance is about a 30-minute drive (one way) from both the Pattipola and Ohiya railway stations. The majority of visitors travel from the town of Nuwara Eliya—as much as ~80% of foreign visitors—and hire four-wheel vehicles for the ~90-minute drive (one way).

This creates a cascade of problems, especially during peak season: concentrated vehicular congestion inside a fragile ecosystem, elevated emissions in a cloud forest where moisture

traps particulate matter against vegetation, and a degraded visitor experience characterised by queues, noise, and fumes at what should be one of Sri Lanka's most serene natural encounters.



A stream winding its way through the mists of HPNP © Sanda Wijeratne

As a solution, this white paper proposes a daily, year-round shuttle service connecting Nuwara Eliya to HPNP—designed to reduce emissions, enhance visitor experience, and increase community benefit. A shuttle service return trip, priced at \$35, would be targeted toward eco-conscious, mid- to high-end market travellers. Each departure would include an onboard naturalist guide who provides ecological interpretation during the journey, a designated photography stop en route, and select ancillary services.

The conceptualised service is commercially viable at occupancy levels as low as 10%; generates strong returns at base-case assumptions; will be positive for the environment as well as for visitors; and is structured to directly benefit the communities surrounding the park through employment and service provision opportunities, as well as a dedicated community fund investing 5% of ticket revenue in community development and ecological restoration.

While the central focus of this white paper is ecological, practical and business factors have also been carefully considered when envisioning a three-phased plan. Starting with small diesel coaches and presenting a clear, financially and infrastructurally sound, phased roadmap to zero emissions is more credible than claiming carbon neutrality from launch.



Roadmap to Zero Emissions

PHASE 1: LAUNCH & OFFSET
(Years 1-3). Locally serviceable Diesel Toyota Coasters; carbon offset via reforestation.

1



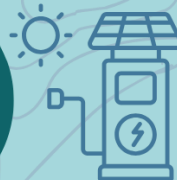
2

PHASE 2: EV TRANSITION
(Years 3-5). Any addition to fleet is EV; more charging stations in SL and more manufacturers offering right hand drive electric minibuses.



3

PHASE 3: CARBON ZERO
(Year 5 onwards). 100% EV fleet with zero tailpipe emissions; solar power for charging vehicles.



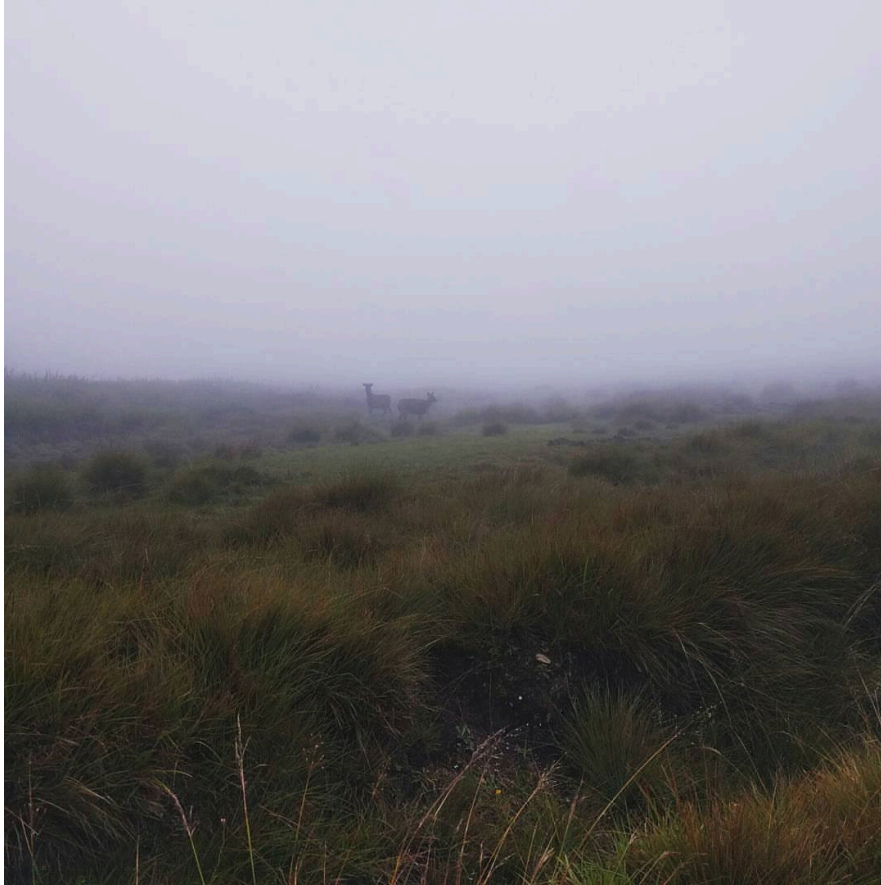
1. **Phase 1 (Years 1–3): Launch Operation with Carbon Offset:**
 - a. Launch with locally serviceable diesel vehicles such as the Toyota Coaster. Prove the financial model and achieve consistent occupancy by primarily targeting mid-to high-end market travellers who are environmentally conscious.
 - b. Build the brand and establish community partnerships. Generate the evidence base such as vehicle reduction data, emissions savings, and community fund impact, which turns this from a business plan into a documented case study.
 - c. Calculate and offset the carbon emissions through a credible local programme (ideally reforestation or ecosystem restoration in the Horton Plains buffer zone).
2. **Phase 2 (Years 3–5): Expand Experience & Begin Transition to Electric Vehicles:**
 - a. Launch private guided experiences on Horton Plains trails with separate pricing. Expand and deepen the naturalist team.
 - b. Begin electric vehicle (EV) transition planning and feasibility assessment as EV infrastructure becomes more accessible in Sri Lanka, and as manufacturers expand right-hand-drive electric minibuss availability in South Asian markets. Any additions to the fleet would be EV.
 - c. Develop partnerships with conservation organisations for visibility and credibility for Community Fund initiatives.
3. **Phase 3 (Year 5+): Fully Carbon-Zero Operation:**
 - a. 100% electric vehicle transition. The capital for this transition is generated from Phase 1-2 cash flows.
 - b. Achieve credible carbon-zero certification via an electric fleet charged from renewable sources, including solar charging infrastructure in Nuwara Eliya. The entire journey from hotel to park and back generates zero tailpipe emissions.
 - c. Position the service as a case study in sustainable tourism infrastructure. Build international visibility through conservation and tourism industry partnerships, media engagement, and speaking platforms.

This is a capital-light business with total startup investment being under USD 205,000 for Phase 1. Investors can expect payback within the first 1.5 years, across all occupancy scenarios. Phase 3 electric vehicle transition can be funded from retained earnings without additional investment.

2. The Problem

2.1 The Ecological Case

The ecological significance of HPNP is difficult to overstate. The Park is home to several endemic and vulnerable animal species. The majestic sambar deer (*Rusa unicolor unicolor*) is a common sight at dusk and roams freely on the grassland. The leopard is more elusive—the *Panthera pardus kotiya* can usually only be spotted at dawn.



HPNP's iconic sambar deer barely visible through the mist © Sanda Wijeratne

There are 52 species of endemic birds and 11 species of migrants (which visit between November to March every year) at HPNP. Among the endemic birds are the Yellow Eared Bulbul (*Pycnonotus penicillatus*), the Sri Lanka White Eye (*Zosterops ceylonensis*), the Whistling Thrush (*Myophonus blighi*), the Dull Blue Flycatcher (*Eumyias sordidus*), and the Mountain Hawk-Eagle (*Nisaetus kelaarti*).

Beyond biodiversity, HPNP functions as critical environmental infrastructure. The headwaters of the Mahaweli, Kelani, and Walawe rivers originate here, supplying water to millions of people downstream. The health of this ecosystem has national implications far beyond tourism.

On a peak-season day, the number of individual vehicles entering HPNP is ~150 as a conservative estimate. These are predominantly vans and SUVs. The road through the park is narrow. Vehicles idle at the entrance, along access roads, and at the World's End viewpoint parking area. The presence of diesel particulate matter in a montane forest environment, with moisture hanging in the air and settling on vegetation, has a disproportionate ecological impact compared to lowland environments.

Noise from engines and vehicle movement disturb wildlife behaviour, particularly among noise-sensitive bird species and the park's iconic sambar deer. Vehicles can also cause direct harm to wildlife—an academic study which analysed roadkill in HPNP over a 6-year period found that ~77% of observed roadkill species were endemic.



Vehicular pressure at entrance to Horton Plains © Ishan Seneviratne, Majintha Madawala & Sanjaya Atapattu

2.2 The Visitor Experience Problem

The current visitor experience at Horton Plains begins with a transactional negotiation. A tourist staying in Nuwara Eliya must arrange a private vehicle through their hotel or a local driver.

The cost for a Nuwara Eliya-HPNP-Nuwara Eliya round trip typically ranges from about LKR 8,000 or ~\$25 for a three-wheeled vehicle (tuk tuk) to LKR 10,000-12,000 (~\$32-\$39) for a four-wheeler (typically a van). Tuk tuks and older vans with limited leg space make for bumpy, cramped, uncomfortable rides across the hilly terrain.



Montane Forests of HPNP © Dilanke Panagoda

The journey takes approximately 90 minutes each way. There is usually no interpretation during the drive, no ecological context-setting before the hike, and no curated transition into the park environment even though the route encompasses some of the most beautiful highland scenery in Sri Lanka: the pastoral landscapes of Ambewela, the heritage railway station of Pattipola, and the dramatic transition from tea country into cloud forest.

None of this area's natural or historical significance is currently narrated, contextualised, or celebrated. Visitors arrive in a car park, get out, and figure it out. For a site of such importance, this represents a profound missed opportunity. The journey to Horton Plains should be the beginning of the experience, not dead time.

2.3 The Community Dimension

Currently, the villages of Pattipola and Ambewela derive limited structured benefit from the tourism traffic that passes through them daily. The economic value of Horton Plains tourism bypasses these communities rather than circulating within them.

3. The Solution: A Pioneering Model

3.1 Concept Overview

This white paper proposes a daily, year-round shuttle service connecting Nuwara Eliya to HPNP—designed to reduce emissions, enhance visitor experience, and increase community benefit. A shuttle service return trip, priced at \$35, would be targeted toward eco-conscious, mid- to high-end market travellers. Each departure would include an onboard naturalist guide who provides ecological interpretation during the journey, a designated photography stop en route, and select ancillary services.

The Problem	Solution Provided by this Model
<p><i>Ecological Harm</i></p>	<p><i>Replacing just 30% of vehicles could yield ~25% emissions reduction.</i></p> <p>In stop–start conditions, vehicles generate disproportionately high emissions due to inefficient fuel combustion. Add to this the heavy diesel mix and an ageing fleet profile, as typically seen in HPNP, and total fuel consumption for 150 vehicles over just 30 minutes could be estimated at nearly 160 litres. This is assuming 70% diesel vehicles (predominantly vans, with a smaller share of coaches and pickup trucks) and 30% petrol vehicles (mainly tuks and cars), and factoring in that roughly 60% of the fleet is older and less efficient. This translates to ~400 kg of CO₂ emissions in half an hour. Reducing 30% of these vehicles with a shuttle, and even after factoring in the emissions of a diesel bus, an emissions reduction of ~100 kg of CO₂ can be estimated.</p>
<p><i>Low Visitor Experience Value</i></p>	<p><i>Turning “dead” travel time to guided tour experience.</i></p> <p>Guests travel in a comfortable vehicle with panoramic views of Sri Lanka's highland landscape, accompanied by a naturalist guide who introduces the communities along the route before taking them deeper into the ecology of the cloud forest, its endemic species, its role as a watershed, and what to look out for on the trails ahead. By the time they arrive at HPNP, visitors are better-equipped to appreciate where they are. Tea, coffee, meals, and snacks are available to purchase on board.</p>
<p><i>Low Community Involvement</i></p>	<p><i>Opportunities for employment and ancillary service provision for local communities. Involvement in Community Fund Initiatives.</i></p> <p>Employees for the business as well as inputs for the ancillary services will be sourced locally wherever possible. A ring-fenced community fund will be set up allocating 5% of net ticket revenue to initiatives that benefit the community. Social initiatives would receive 2.5% of net ticket revenue, with community input on where funds should be directed. Potential uses include improvements in education and healthcare infrastructure in Pattipola / Ambewela and support for sustainable farming practices in the HPNP buffer zone.</p> <p>The active restoration of the ecosystem will also be sponsored through a further 2.5% of net revenue directly going to organisations working to remove invasive foreign species and restore the park's indigenous landscape.</p>

3.2 The Environmental Benefits



Changing weather of HPNP © Dilanke Panagoda

The environmental case for this service is not a marketing overlay; it is the structural logic of the business:

- Each shuttle vehicle departure, even at 50% occupancy (11-12 passengers), replaces approximately 3-5 individual hired vehicles. At base-case Year 1 volumes of ~12,000 annual passengers, the service removes an estimated 3,000-5,000 individual vehicle trips from the park per year.
- The per-passenger carbon footprint of a shared vehicle is approximately 65–85% lower than individual transfers, even when using diesel vehicles. Under congested, stop–start conditions, 150 vehicles generate disproportionately high emissions due to inefficient fuel combustion, a heavy diesel mix, and an ageing fleet profile. Assuming 70% diesel vehicles and 30% petrol vehicles, and factoring in that roughly 60% of the fleet is older and less efficient, total fuel consumption over just 30 minutes is estimated at approximately 158 litres. This translates to around **408 kg of CO₂ emissions in half an hour**, or over **0.8 tonnes per hour**. The result is more than double of what could be expected under smoother driving conditions, underscoring how congestion, not just distance travelled, drives emissions. In a fragile ecosystem such as HPNP, this provides a strong basis for interventions like scheduled shuttle systems, vehicle caps, and staggered entry, which directly target the structural causes of these emission spikes.

- Beyond emissions, fewer vehicles mean reduced noise disturbance and physical injury to wildlife, less road surface degradation which reduces the Department of Wildlife Conservation's maintenance burden, and lower particulate matter concentration in the cloud forest canopy. These impacts, when measured and reported annually, create an evidence base that strengthens the conservation narrative over time.
- Furthermore, the environmental contribution of this service extends beyond reducing vehicle impact, with Community Fund investments being allocated to active ecosystem restoration. During the British colonial period, ornamental plants were introduced to Horton Plains. Many have since become invasive, spreading aggressively through the montane grasslands, displacing native flora, and increasing fire risk. The business model outlined allows for 2.5% of shuttle revenue to go directly to organisations working to remove these species and restore the park's indigenous landscape.

All of this means that the shuttle does not simply do less harm. It actively funds the repair of existing ecological damage, creating a direct financial link between every ticket sold and the long-term health of the ecosystem. Over time, this creates a measurable restoration narrative that strengthens the service's conservation credentials and provides tangible evidence of impact for visitors, partners, and investors.

3.3 The Customer Experience

3.3.1 The Target Customer

The target customers would be eco-conscious travellers who see value in a shuttle service that is more than a transport option and which:

- is more comfortable than a three-wheeler or an old four-wheeler (several of the vehicles that currently make this run are poorly maintained and cramped),
- is better for the environment, and
- enhances a travel experience that would otherwise be 'dead' time—thanks to the interpretations offered by the naturalist guide (additionally, there will be an opportunity to interact with other travelers on the shuttle).

3.3.2 The Naturalist Guide

The naturalist guide is essential to success. The 90-minute journey is not dead transfer time but the opening chapter of the Horton Plains experience. During the journey, the naturalist should:

- explain the ecological significance of the cloud forest ecosystem,
- identify the species to look out for with seasonal highlights,
- cover the various trail/route options including difficulty levels and what to expect,
- narrate the conservation story behind the shuttle service, and
- provide cultural context on the communities and landscapes along the route.

For non-English-speaking visitors, multilingual digital guides would need to be made available via QR code on the bus—covering the same interpretation in Mandarin, Japanese, French, German, Hindi, and other key source market languages—designed to be visually attractive and informative, not merely translated text. The naturalist will also be first-aid certified and trained as an emergency driver, providing operational resilience and passenger safety.

3.3.3 Ancillary Products

Several ancillary products can enhance the experience and create additional revenue streams:

- **Trail supplement pack (\$8):** A reusable branded water bottle, rain poncho, and printed / downloadable walking map & guide with species checklist. These items can be designed to be kept as souvenirs and serve as walking brand ambassadors on the trail.
- **Meal pack (\$10):** A high-quality breakfast or lunch box depending on departure time. This solves a genuine pain point as quality food is not available at Horton Plains. Contents to be sourced from local suppliers with branded packaging.
- **Tea and coffee flask service (\$3):** Ceylon tea and coffee can be served on the bus during the journey with the naturalist pointing to the estates where the tea was grown where visible from the route—a small storytelling moment with high perceived value.

3.3.4 Future Extension: Private Guided Experiences



On the Kirigalpoththa trail © Dilanke Panagoda

Over time, the organisation would build up a naturalist team with deep knowledge of the HPNP and Central Highlands area. This creates a natural extension into private guided treks, booked separately for guests seeking a deeper experience. This does not launch on Day 1, but would be built into strategy, ensuring the service evolves to a travel experience platform over time.

3.4 The Community Benefits

Community involvement is not a corporate social responsibility afterthought. It is a structural element of this social business model.

3.4.1. Employment

All drivers and naturalist guides would be recruited from communities adjacent to the park, predominantly Pattipola, Ambewela, and Nuwara Eliya. The role needs to be positioned as a skilled, well-compensated career path, not casual employment. Guides would be trained in ecology and interpretation, certified in first aid, and capable of emergency driving. This creates a professional naturalist workforce in the highlands that does not currently exist at scale.

3.4.2 The Community Investment Fund

Five percent of net ticket revenue would be allocated to a ring-fenced community investment fund, to be governed transparently with community input on allocation. At Year 1 base case, this represents ~\$17,000, scaling to nearly \$30,000 by Year 3.

- 2.5% of net ticket revenue would be allocated to broad-based social initiatives such as school and healthcare infrastructure in Pattipola and Ambewela, environmental education programmes, and support for sustainable farming practices in the buffer zone.
- A further 2.5% is allocated separately to invasive plant removal and ecosystem restoration within the park, as detailed in Section 3.2.

3.4.3 Integrating Existing Operators

Proactive engagement with existing operators before launch is essential to building goodwill and avoiding unnecessary friction. The current van and car transfer operators serving this route should be integrated where possible. The service could recruit experienced drivers from this pool and engage local vehicle owners in support roles. The narrative is clear: this model creates more stable, better-compensated employment.

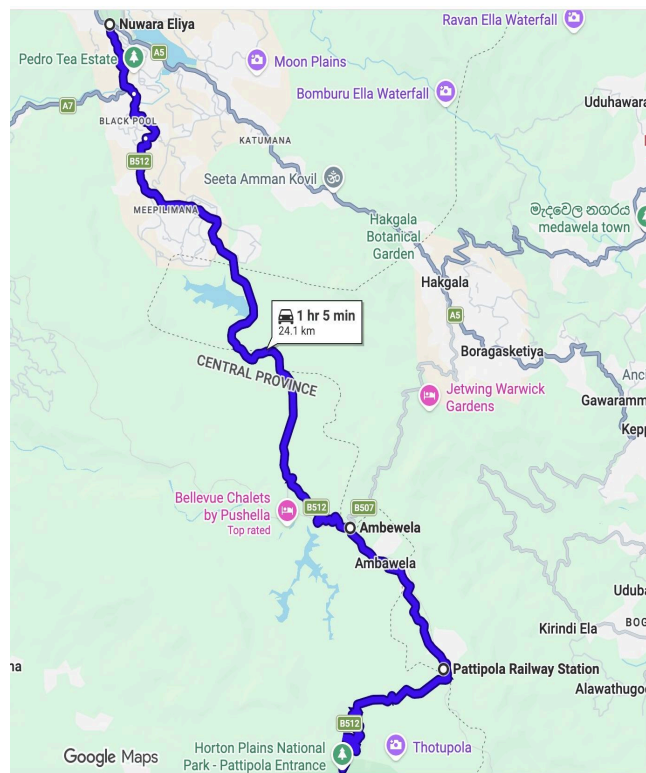
There can also be upskilling and training opportunities made available to all operators (whether within the shuttle network or not) to further inculcate community goodwill. For instance, the first aid training that would be conducted for shuttle company employees could be opened up to a broader group of operators to enhance community knowledge and safety for travellers.

3.5 Route and Scheduling

The route runs from Nuwara Eliya town to Horton Plains National Park, with intermediate pickup points:

- **Nuwara Eliya:** One central pickup point in the town centre, plus collection from three designated partner hotels.
- **Ambewela:** A roadside pickup for guests staying at bungalows, farm stays, and homestays in the area.
- **Pattipola:** A pickup near the railway station, serving guests who arrived via the scenic hill country train.
- **Photography stop:** A 5–10 minute stop at a scenic viewpoint en route, selected by the naturalist based on conditions (light, weather, and visibility). This transforms the transfer into a content-creation moment for guests, generating organic marketing when they share images.

The service operates year-round: four departures daily during peak season (approximately five months) and three departures during low season (approximately seven months). Guests book return tickets in advance through the organisation’s website or via partner hotels and restaurants in Nuwara Eliya.



3.5.1 Proposed Departure Schedule for Peak Season (Dec.-Mar. + Aug.)

Outbound Nuwara Eliya to Horton Plains

Departure Slot	Depart Nuwara Eliya	Arrive HPNP	Visitor Profile
Dawn	4:15 AM	~5:45 AM	Birders, serious hikers, sunrise at World's End
Morning	6:30 AM	~8:00 AM	Active walkers, photographers
Mid-morning	9:30 AM	~11:00 AM	Relaxed visitors, families
Mid-day	11:30 AM	~1:00 PM	Travellers with tight schedules, visitors preferring shorter walks

Return departures from Horton Plains operate at corresponding intervals, with the first return at approximately 9:45 AM. Each guest is allocated an average of four hours at the park, with return departures fixed to their corresponding arrival slot. Guests select their return departure at the time of booking. Indicative trail durations are provided to help guests plan: the full World's End and Baker's Falls loop takes approximately 3–4 hours, while shorter trails require 1.5–2 hours.

All tickets are sold as returns only. This simplifies operations, guarantees return revenue, and is practical given the lack of alternative transport originating from the park.

3.6 Channels

The service would launch with two distribution channels:

1. **Direct bookings via website:** A clean, mobile-first booking platform to be the primary channel: select date, departure time, return time, add ancillaries, pay (ancillaries can also be added on-board). The platform should support real-time seat availability, multilingual interface, and automated confirmation with a pre-trip briefing.
2. **Hotels and restaurants:** Partnerships with 10–15 properties in Nuwara Eliya across mid-range and upper-mid segments, plus selected restaurants. Physical booking via front desk or reception with 15% commission on ticket price. Restaurants are included because many guests dine out the evening before and ask staff for recommendations—a natural conversion point.

No online travel agency distribution at launch. Keeping distribution direct and through trusted local partners protects margins, builds direct brand equity, and maintains control over the guest relationship.

4. Branding and Experience Design

The brand identity of this service must communicate three core pillars: conservation credibility, elevated guest experience, and genuine community partnership. Getting this balance right determines whether the service is perceived as a curated experience or simply a shuttle bus.

4.1 Conservation as Brand Identity

This is not a transport company that happens to be sustainable; it is a conservation initiative that happens to operate vehicles. The brand should be rooted in the ecology of Horton Plains with every touchpoint reinforcing this positioning: the visual design should evoke the mist, flora, and fauna of HPNP; the colour palette should feel natural and grounded rather than corporate; and the logo should reference an iconic element of the Horton Plains ecosystem.

The brand name would ideally draw from the HPNP's endemic species or landscape features to create immediate association with the place. It should be short, memorable, easy to pronounce across languages, and distinctive enough to rank in search results. The name should work as both a conservation reference and a commercial identity, avoiding generic sustainability or transport terminology.

Detailed branding, visual identity, and tone-of-voice guidelines should be developed as a dedicated workstream once the operational model is confirmed. Marketing language should be specific and evidence-based rather than relying on generic sustainability claims.

4.2 Service Quality Synonymous with Brand

The single most important brand differentiator is the onboard naturalist. This transforms the service from a transfer into a 90-minute conversation on one of the world's most remarkable ecosystems.

The naturalist's role should be defined by warmth, knowledge, and genuine passion. They are not reading a script; they are sharing a place they know intimately. The brand should invest heavily in local guide recruitment, training, and retention, because the quality of this conversation defines the quality of the brand.

The physical experience must match the interpretive quality. While the vehicle is a standard coach, the service standards should feel deliberately considered.

- A comfortable vehicle: clean, well-maintained with comfortable seating and unobstructed windows for scenic viewing.
- A curated onboard atmosphere: no loud music, no rushed departure. The journey begins calmly and intentionally.
- The photography stop: treated as a designed moment, not as an afterthought, with the naturalist selecting the location based on light and conditions.

- High-quality ancillary products: meal packs that feel like a treat rather than a packed lunch, Ceylon tea served in branded flasks, trail supplements that double as keepsakes.
- Clear communication throughout: booking confirmation with what to expect before the journey, onboard briefing, post-trip follow-up inviting feedback and reviews.

The cumulative effect of these details is a service that feels considered and premium without being exclusive. Mid-market positioning does not mean mid-quality execution.

4.3 Community as Brand Story

The community integration described in this paper is not just operational best practice, it is one of the most compelling elements of the brand story. Guests should know that their naturalist is from Pattipola, that their driver grew up in these highlands, that a portion of their ticket funds local education, and that another portion is removing the invasive plants that have been degrading the park's grasslands since the colonial era.

This story should be woven into the experience naturally, not as a printed CSR statement. When the naturalist points out a school in Pattipola and mentions the community fund's contribution, that is more powerful than any brochure. When a guest learns that the guide they spent 90 minutes with is building a career in conservation interpretation because of this service, the brand becomes personal and memorable.

The brand should also visually feature the community: real people, real places, real stories in marketing materials rather than stock photography or generic tourism imagery.

4.4 Building a Competitive Moat

If this model succeeds, it will be copied. The question is not whether competition emerges, but how the organisation stays ahead. Defensibility needs to be designed and built across multiple layers that compound over time.

4.4.1 Brand and First-Mover Advantage

The first operator to establish a branded, conservation-positioned shuttle to Horton Plains defines the category. In a market with one dominant solution, the first mover captures disproportionate brand recognition, search visibility, and partnership access. Maintaining consistent quality and visibility in the first 12–18 months would create an association between the service and the destination that competitors must work against.

4.4.2 Digital Infrastructure and Data

The booking platform, multilingual digital guides, and customer data—booking patterns, preferences, ancillary uptake, feedback—create operational intelligence that would help improve the service continuously. Over time, this data should inform scheduling optimisation, pricing

refinement, ancillary product development, and targeted marketing. A competitor entering the market starts with none of this intelligence.

4.4.3 Distribution Relationships

Deep, commission-based partnerships with the right hotels and restaurants create a distribution network that a new entrant would need months to build. These relationships would be maintained through reliability, fair commission structures, easy booking processes, and the quality of guest feedback. Once a front desk consistently recommends the service and gets good feedback, switching costs are real because hotel staff know the product, trust the experience, and have no incentive to redirect guests to an unproven alternative.

4.4.4 Community Embeddedness

The community fund and local employment help create stakeholders with a vested interest in the organisation's success. A competitor entering the market without these structures would face scepticism. Local advocacy—from guides and drivers to funded schools in the community—is a moat that protects against easy replication.

4.4.5 Continuous Innovation

The roadmap from guided shuttle to private guided experiences and from diesel to carbon-zero certification means the organisation is always one step ahead. By the time a competitor copies the shuttle, the organisation is adding EVs. By the time they add guides, premium walks have been introduced. By the time they go electric, the organisation has carbon-zero certification and international partnerships. The moat is not any single feature but the compounding effect of continuous, purposeful innovation.

5. Execution & Financials

5.1 Startup Investment

Item	Cost (USD)
Vehicles (2 Toyota Coasters)	141,935
Legal / registration / permits	1,500
Branding & visual identity	8,000
Booking platform (build)	12,000
Digital multilingual guides	5,000
Equipment (first aid, uniforms)	3,000
Launch marketing	5,000
Working capital (3 months opex)	28,395
Total startup investment	\$204,830

5.2 Team Structure & Salaries

Staff	Headcount	Monthly Cost per person (LKR)	Total Annual Cost (LKR)
Drivers (rotation)	3	120,000	4,320,000
Naturalist guides (rotation)	3	200,000	7,200,000
Manager (Admin)	1	200,000	2,400,000
Marketing / BD	1	150,000	1,800,000
Customer Service	1	100,000	1,200,000
Total annual staff costs (LKR)			16,920,000
Total annual staff costs (USD) <i>USD 1 = LKR 310</i>			~\$54,580

Naturalist guides are highly paid by design. This signals organisational values, attracts quality talent, and reflects the centrality of interpretation to the product. Guides should hold or be working towards biodiversity or ecology qualifications, with ongoing training and professional development built into the operating model.

5.3 Booking Platform

The platform can be built bespoke or configured from an off-the-shelf scheduling and booking tool such as Peek, FareHarbor, or Bookeo, adapted to specific requirements. Key features include calendar-based departure selection, real-time seat availability, ancillary upsell at checkout, a hotel and restaurant partner portal for commission tracking, multilingual interface, and automated communications.

Budget: \$12,000 for setup; \$4,000 per year for maintenance and hosting.

5.4 Pre-Launch Timeline

A six-month pre-launch runway is recommended:

- **Months 1–2:** Vehicle procurement initialisation, brand identity finalisation, booking platform development, guide and driver recruitment, regulatory research and applications.
- **Months 3–4:** Guide training programme (ecology, interpretation, first aid, driving), hotel and restaurant partnership outreach, platform testing, route finalisation and photography stop scouting.
- **Months 5–6:** Soft launch with complimentary or discounted trips for hotel partners and travel trade to build reviews and word of mouth. Marketing launch: social media, website, PR outreach. Final operational testing.
- **Month 7:** Full commercial launch.

5.5 Key Assumptions

- Starting vehicles are 2 × Toyota Coasters with 22 guest seats each and costing LKR 22M each (~\$71,000 at LKR 310/USD)
- Return ticket price = \$35. Guest park entrance fees are not included in this ticket
- Operating days = 365/year with 152 peak season and 213 low season days a year
- Weighted average occupancy for the base case is 27.3%
- A majority of bookings are direct (65%) while 35% come via distribution partners
- A commission of 15% is granted to distribution partners, in line with industry standard

5.6 Projected Revenue & Costs—Base Case Scenario Year 1

5.6.1 Revenue & Margin

Revenue & EBITDA	Year 1
Total net revenue (ticket + ancillary)	\$394,499
Operating costs	\$130,479
EBITDA	\$264,019
EBITDA margin	66.9%

The high EBITDA margin reflects the structural advantage of a USD-denominated tourism product operating with LKR-denominated costs. This margin structure is consistent with inbound tourism operations across Sri Lanka and is sustainable as long as the service maintains quality and occupancy.

5.6.2 Ancillary Revenue

Product	Per Item Price	Take Rate	Year 1 Revenue
Trail pack	\$8	35%	\$33,600
Meal pack	\$10	40%	\$48,000
Tea & Coffee	\$3	50%	\$18,000
Total ancillary net revenue (USD)			\$99,600

5.6.3 Ancillary Cost of Goods

Product	Per Item Cost
Trail pack	\$4.00
Meal pack	\$4.50
Tea & Coffee	\$1.00

5.6.4 Operating Costs

Item	Year 1
Salaries	\$54,581
Fuel	\$21,000
Vehicle maintenance	\$8,000
Insurance	\$5,000
Booking platform maintenance	\$4,000
Marketing (ongoing)	\$10,000
Office rent & administrative	\$6,000
Permits & licensing	\$2,000
Community fund	\$19,725
Total Operating Costs	\$130,306

5.7 Breakeven & Profitability

Cumulative cash flow turns positive within ~15 months of launch, and by end of Year 3, the business is projected to have generated over USD 370,000 in cumulative free cash after recovering the full startup investment.

Under all three modelled scenarios (conservative, base, and optimistic) the business is profitable from Year 1 and achieves full payback within 18 months. The single most important variable in this model is occupancy.

Year 1 Scenario	Avg. Occupancy	Ticket Price	Annual Passengers	Total Net Revenue	EBITDA	EBITDA Margin
Conservative	21.5%	\$30	9,483	\$273,006	\$148,003	54.2%
Base Case	27.3%	\$35	12,026	\$394,499	\$264,019	66.9%
Optimistic	31.6%	\$45	13,923	\$568,524	\$429,790	75.6%

The business is profitable across all three scenarios. Even under the conservative scenario—representing a slow uptake, poor weather year, limited hotel buy-in and other headwinds—the service generates nearly \$150,000 in EBITDA in Year 1.

The breakeven occupancy is approximately 10%, meaning the service would need to consistently fill fewer than three seats per departure to operate at a loss. This is an extremely low floor and demonstrates the structural soundness of the unit economics.

5.8 Rate Sensitivity

5.8.1 Ticket Price Sensitivity

The \$35 ticket price works well for mid- to high-end travelers who want a more comfortable ride, understand the ecological value proposition of a shuttle service (even if diesel at the start), and look forward to a high quality, local knowledge-packed experience that is far beyond a mere transportation service.

5.8.2 Fuel Cost Sensitivity

Fuel represents approximately 16% of total operating costs. This sensitivity reinforces the strategic rationale for the electric vehicle transition: when fuel costs become volatile, the organisation is already on a path to eliminate them entirely.

5.8.3 Exchange Rate Sensitivity

Revenue is effectively USD-denominated (priced for international visitors), while costs are LKR-denominated. A weakening Sri Lankan rupee improves margins; a strengthening rupee compresses them.

At the current rate of approximately LKR 310 per USD, the model is robust. A significant rupee appreciation to LKR 250 per USD would increase USD-equivalent operating costs by ~20%.

6. Potential Challenges and Mitigations

6.1 Demand Fluctuations & Occupancy Ramp

Risk: Slower-than-expected uptake in the first 3-6 months and extended periods of low demand during certain months or following external shocks (travel advisories, economic downturns, etc.).

Mitigation: The reduced low-season schedule (three departures versus four) limits cost exposure during slower periods. Targeted pricing promotions during shoulder periods can stimulate demand. The low fixed-cost base means the business can absorb significant demand drops without becoming unviable.

The breakeven occupancy of 10% means the business survives a slow start. A soft launch with complimentary trips builds word of mouth and hotel confidence. The commission structure incentivises active selling by hotel and restaurant partners. Aggressive social media content from Day 1 builds awareness ahead of the commercial launch.

6.2 Local Opposition from Existing Operators

Risk: Van and car drivers who currently service this route will perceive the service as a threat to their livelihoods and this will be one of the strongest challenges. While this challenge can be mitigated, the organisation would need to be street smart and genuinely engage with the relevant communities and stakeholders.

Mitigation: The narrative must be “better, more stable employment opportunities” rather than “replacement.” Proactive engagement before launch by recruiting drivers from the existing pool, offering subcontracting for overflow and special services, and involving community leaders in planning will be critical.

Further, it must be clearly communicated at every instance possible that the Community Fund directly benefits the surrounding communities. Advance targeted donations (before the fund is even started) to local schools, temples, kovils, and churches could help with community buy-in.

Once the fund is up and running, more projects can be funded, such as periodic, short-term assistance in purchasing fertilizer or seeds when a crop season fails (while this would essentially be a subsidy, in the long term, it would be important to fund the communication of the latest technical knowledge on effective farming practices through established organizations).

6.3 Vehicle Breakdown or Operational Disruption

Risk: A vehicle breaks down mid-route or is out of service for extended maintenance.

Mitigation: The two-vehicle fleet provides built-in redundancy. If one is down, the service operates on a reduced schedule rather than stopping entirely. A preventive maintenance schedule minimises unplanned downtime. A relationship with a Toyota-authorized service centre

in Nuwara Eliya enables rapid response. Each naturalist is trained as an emergency driver, providing crew flexibility.

6.4 Regulatory Changes

Risk: Transport authorities / the Department of Wildlife Conservation (DWC) impose new restrictions, fees, or requirements on commercial shuttle services.

Mitigation: Maintain a proactive and transparent relationship with DWC and transport regulators from the outset. Position the service as aligned with conservation goals, not in competition with them. If the service demonstrably reduces vehicle numbers and environmental impact, regulators have a strong incentive to support rather than restrict it. Early engagement is preferable to reactive compliance.

6.5 Quality Consistency

Risk: As the service matures, the naturalist experience and overall quality dilutes through complacency or staff turnover.

Mitigation: Invest in guide training as an ongoing programme, not a one-off induction. Build a guest feedback loop into the booking platform with post-trip surveys driving continuous improvement. Keep the team small and well-compensated rather than scaling headcount prematurely. Recognise and reward outstanding guides.

6.6 Competitor Entry

Risk: A larger tour operator, hotel group, or transport company launches a competing shuttle service.

Mitigation: The previously outlined moat strategy addresses this. First-mover brand equity, naturalist talent depth, community integration, and proprietary business intelligence create compounding barriers to imitation.

If a large player enters, it validates the market concept. The organisation can explore partnerships, licensing, or acquisition from a position of operational strength.

7. Conclusion

The way tourists currently access HPNP is environmentally damaging and experientially underwhelming. It concentrates diesel emissions inside a fragile cloud forest and wastes a rich storytelling opportunity during a ~90-minute journey through some of the most remarkable landscape on the island. Tourist value also bypasses the surrounding communities with very few opportunities for tourists to engage.

The solution proposed in this paper is not radical. At its crux, it is simply a shuttle with a good guide. But in its simplicity lies its power. It works commercially even at low occupancy levels. It shows environmental benefits from Day 1, with a credible pathway to carbon zero. It works for communities, creating stable employment and a mechanism for reinvesting into both the community and the ecosystem itself. Most importantly, it works for visitors, turning a transactional transfer into an unforgettable experience.

This is not just a business opportunity. It is a demonstration of what sustainable tourism infrastructure could look like when it is designed to protect the places it depends on.

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Dilanke has spent over thirteen years working across Sri Lanka's travel and hospitality industry. He began by spending five years planning luxury experiential trips to Sri Lanka for discerning travellers worldwide, before working as a safari guide in Yala National Park. As a founding member of travel startup Pepper, he set up various business functions and created travel experiences with many local communities across the country. He later led an analytics team at Grant Thornton Stax, a management consulting and private equity advisory firm, uncovering unique customer insights across investments in various industries. He currently serves as Head of Product & Marketing at The Fabulous Getaway, a luxury destination management company specialising in unique Sri Lanka experiences. He holds CIMA qualifications and an MBA in International Business.

His work sits at the intersection of tourism product development, data, and responsible travel. He has designed experiences in partnership with over 100 local communities across Sri Lanka and is a vocal advocate for responsible tourism practices, women's empowerment in the industry, and conservation-led business models. It was during his time at Stax that he first worked with co-author Sanda Wijeratne, who mentored him there. A shared analytical rigour underpins this paper's commercial framework.

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Sanda currently serves as Head of Delivery at Grant Thornton Stax's Colombo office, with over 15 years of experience in providing data-driven, actionable insights to both global and local investors. Her work at Stax, alongside earlier roles in non-profit and socially driven organisations, have shaped a strong conviction that enduring success depends on designing models and systems that prioritise long-term sustainability and genuine stakeholder welfare.

She is also a believer in the power of clear, compelling storytelling to focus attention and drive meaningful change—whether through a well-crafted slide deck, an engaging piece of theatre, or a moving short story. Sanda is a Director at Stages Theatre Group and recently completed an MA in English Studies at the University of Colombo. She also holds a BA in English and International Relations, summa cum laude, from Lafayette College. A blend of narrative sensibility and analytical rigour underpin Dilanke's approach to work as well, making this white paper a natural collaboration.